

RESILIENT PRACTICES ADOPTED BY KRISHI VIGYAN KENDRA'S (KVKS) DURING COVID-19

Dr. Ashwini Darekar and Dr. K. C. Gummagolmath

National Institute of Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad- 500
030, INDIA

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ABSTRACT

The COVID-19 lockdown has impacted different sectors of the Indian economy. Its impact on Indian agriculture has been complex and diverse across various segments of agricultural value chain and across season. When the lockdown was announced, rabbi crops like wheat, chickpea, mustard etc. were to be harvested. Further, the most significant reasons contributing to impact of COVID-19 were similar for both perishable and non-perishable commodities. Lockdown resulted in lesser demand which resulted in decline in the prices of commodities. FPOs found it challenging to transport the agri. produce to either market or to consumer. The purchases from markets and from FPOs were significantly hampered due to the shortage of credit to the traders. . However, with the help of some institutes like KVK and NGOs, few of the FPOs played significant role in marketing of their produce and were able to reach consumers during the lockdown period. These innovative approaches are worth emulating in other places and under any crisis period. Hence, an attempt has been made in this paper to ascertain and analyse the role of KVKs in inducing COVID-19 resilient marketing practice. The study found that COVID like situation may occur any time in future and hence, we need to be prepared for such situation. Especially agriculture sector, which caters to the daily food needs of general public, it is inevitable to have resilient practices to counter any unforeseen situation. The study suggest that the COVID-19 resilient practices adopted by KVKs are invaluable and other institutions and agencies have to emulate these practices to combat any unforeseen disaster like COVID-19.

Key Words: FPO, KVK, COVID-19,

I. Introduction

The growth of Indian agriculture has been impressive in the recent decades. The journey of agriculture from food deficit to self-sufficiency and of course now surplus production is considerably aided by public extension system. It is established by the fact that with the aid of

public extension system, India is able to achieve a record production of food grains (296 million tonnes) and equally a record production of horticulture produce (311 million tonnes). Till date, agriculture contributes substantial portion of GDP (13.1%). The public extension system comprises of Indian Council of Agricultural Research (ICAR) an apex institute, State Agricultural Universities and the State Department Agriculture and Allied Sectors. Besides, at the helm of the affairs, Department of Agriculture, Cooperation and Farmers Welfare is supporting the extension system through several policy interventions. Among various public extension agencies, KVKs are operating at field level with mandates of transfer to technology and imparting vocational training to various field functionaries and other stakeholders. KVKs have been playing a crucial role in the whole public extension system. The unique feature of KVKs is that they work very closely with the farmers. Over the years, farmers have developed faith in KVKs and at the same time, KVKs have measured up to the expectations. To overcome the problem in technology gap, establishment of Krishi Vigyan Kendra's (KVK) was well thought by the policy makers. The mandate envisaged for KVKs was transfer of technology and providing training to local small and marginal farmers. Based on the recommendation of the Education Commission, the ICAR mooted the idea of establishing Krishi Vigyan Kendra's (Agricultural Science Centres) as innovative institutions for imparting vocational training to the practicing farmers, school dropouts and field level extension functionaries. At present there are 721 KVKs, out of which 498 are under State Agricultural Universities (SAU) and Central Agricultural University (CAU), 104 under NGOs, 66 under ICAR Institutes, 38 under State Governments, and the remaining 15 under other educational institutions.

II. Impact of COVID-19 on Agriculture in general and FPOs in particular

The COVID-19 lockdown has impacted different sectors of the Indian economy. Among the various sectors, agriculture was least affected sectors witnessing a negative growth to the tune of 1.3% as compared to financial, real estate and service sector (-17.3%), construction (-13.9%) trade (-9.7%) and manufacturing (-6.30%). Its impact on Indian agriculture has been complex and diverse across various segments of agricultural value chain and across season. When the lockdown was announced and crops like wheat, chickpea, mustard etc. were to be harvested. Since, agriculture directly impacts the entire population interns of availability of food, it is pertinent to analyse the impact of COVID-19 on the sector, including COVID-19 resilient practices adopted by different stakeholders like Govt. agencies, NGOs and private individuals. It was also the time for the farm produce to reach markets for procurement by government agencies. The immediate challenge, therefore, was market access for the farm produce, which was problematic due to unavailability of workers for operations at farm and mandis and absence of transportation, the very livelihood of various actors of the supply chain.

Amid the corona virus lockdown across the country that brought economic activity to a near halt, the Indian government is expecting that agriculture sector could be a silver lining for the Indian economy as it is estimated to grow at a rate of 3 per cent for the year 2020-21, according to NITI Aayog report. Currently the growth of the agriculture sector is relatively higher than the non-agriculture sectors, which is very rare and the estimated growth is attributed to the normal monsoon this year along with India's water availability in reservoirs, which is 40-60 per cent higher than last year. However, the prolonged lockdown along with rain and hailstorm in many regions has heightened rural distress, pushing villagers to a situation where farmers are affected in terms of performing agricultural operations. Initially, the pandemic situation coincided with the harvesting season and it is likely to affect sowing operations across the country. To add to the woes, large scale migration is leading to non-availability of labour for performing farm operations. Moreover, the disruption in wholesale markets and transportation hurdles have ravaged the rural economy.

Further, the most significant reasons contributing to impact of COVID-19 were similar for both perishable and non-perishable commodities. Lockdown resulted in lesser demand which resulted in decline in the prices of commodities. The most crucial factor for decline in demand was closure of hotels, restaurants, cafe and hostels during lockdown. Another challenge was breakdown in logistics and transportation of commodity. FPOs found it challenging to transport the agri. produce to either market or to consumer. The purchases from markets and from FPOs were significantly hampered due to the shortage of credit to the traders. So, the reduced market demand, inputs, credit/finance, labour shortages, high transportation cost, logistics breakdown, stagnant export, infrastructure bottlenecks and sometimes protocol of local administrations hindered FPOs from carrying out activities in lockdown. However, with the help of some institutes like KVK and NGOs, few of the FPOs played significant role in marketing of their produce and were able to reach consumers during the lockdown period. These innovative approaches are worth emulating in other places and under any crisis period. Hence, an attempt has been made in this paper to ascertain and analyse the role of KVKs in inducing COVID-19 resilient marketing practice.

III. Role of KVKs in promotion and implementation of COVID-19 Resilient Practices

KVKs, besides their main mandate, are involved in various other activities and are also involved in implementation of several schemes. KVKs being a field level agency, are involved in aggregation of farmers into groups, basically for capacity building. Further, through aggregation, KVKs are promoting these groups on various dimensions. KVKs have been in variable part of promotion and implementation of FPOs, a new generation of aggregation of farmers. The FPOs' formation is critical and hence an effort is being made to organize the

farmers into the groups under various programmes of the Department of Horticulture from 2012-13 onwards. The role of KVK in various extension activities including transfer of technology mobilizing the farmers, capacity building, providing hand holding support has been very crucial. Since then the farmers have been mobilized to work in groups from seed to marketing, adopting Good Management Practices (GMP) from production up to post harvest management. KVKs have played a crucial role in formation, implementation and supporting these new generation FPOs.

IV. COVID resilient strategies adopted by KVKs during lockdown in India:

KVKs being a more closer to the farming community, have resorted for several pandemic resilient practices and have been successful. Hence an attempt has been made in this paper to throw a light on the practices adopted by KVKs.

To tackle the situation of pandemic, the Indian Council of Agricultural Research (ICAR) issued state specific guidelines about harvesting and threshing of rabi crops along with the advisories on handling post-harvest operations like storage and marketing of the farm produce more efficiently. In order to cope up with the case specific challenges posed by COVID-19 lockdown, the demand driven and location specific initiatives and innovations were implemented by different field functionaries. Krishi Vigyan Kendra's (KVKs), the outreach arms of ICAR, have once again proven their worth at the grass root level. KVKs tapped full potential of different Information and Communication Technology (ICT) tools to address farm challenges during the lockdown and supported farmers and farm women.

A compilation of selected innovative agri – solutions and successful interventions by the KVKs is given in Table 1. These practices proved quite helpful to the farmers in beating the heat of COVID-19 lockdown. The KVKs offered online advisories and consultations and also promoted awareness to take protection against COVID-19. They have also assured livelihood through linkages and offered mechanization solutions for tackling labour shortage during lockdown. The other important initiatives taken by the KVK were adding value for reducing losses, strengthening storage strategies, crucial management of feed & fodder and innovative marketing etc.

Table 1: Response by KVKs during lockdown in India:

Sl No	Innovations offered	KVKs
1.	Online Advisories and Consultations	ICAR-KVK-Alappuzha, Kerala, KVK Ernakulam of ICAR-CMFRI, Kerala, KVK Saraiya, Muzaffarpur, Bihar, KVK Divyayan, Ranchi,

		Jharkhand, KVK East Singhbhum, Jharkhand, KVK South 24 Parganas (Nimpith), WB
2.	Promoting Protection against COVID-19	Various KVKs of Zone-1, KVKs Patiala and Moga, Punjab, KVK Kota, Rajasthan, KVK Ajmer, Rajasthan, KVK Fatehabad, Haryana, KVK Rewari, Haryana, KVK Wyra, Telangana, KVK Mandi, HP
3.	Assuring Livelihood through Linkages	KVK Sirmour at Dhaulakuan, HP, KVK Solan at Kandaghat, HP, KVK Uttarkashi, Uttarakhand, KVKs Bathinda and Amritsar, Punjab, KVK Lunglei, Mizoram, KVK Nanded-I, Maharashtra, KVK Beed-1, Maharashtra, KVK Bagalkot/ FPO Hungund, Karnataka, KVK Kodagu, Karnataka, KVK Kalburagi, Karnataka, ICAR-KVK, Shivamogga, Karnataka, KVK Salem, Tamil Nadu, KVK Erode, Tamil Nadu, KVK Salem, Tamil Nadu, KVK Ramgarh, Jharkhand, KVK Cooch Behar, West Bengal KVK East Midnapore, West Bengal, KVK Malkangiri, Odisha, KVK Bongaigaon, Assam, KVK Kamrup, Assam, KVK Morigaon, Jhargaoon, Assam, KVK East Kameng, Arunachal Pradesh, KVK Ghazipur II, UP, KVK Bastar, Chhattisgarh
4.	Mechanization Solutions for Tackling Labour Shortage	KVK Bathinda, Punjab, KVK Jhunjhunu, Rajasthan, KVK Coimbatore, Tamil Nadu, KVK Pakur, Jharkhand
5.	Adding Value for Reducing Losses	KVK Mohali, Punjab, KVK Chittorgarh, Rajasthan, KVK Naguar-I, Rajasthan, KVK Jaipur-I, Rajasthan, KVK Bhilwara-I, Rajasthan, KVK Chandel, Manipur, KVK Thoubal, Manipur, KVK Mamit, Mizoram, KVK Aurangabad-II, Maharashtra, KVK Bagalkot/ FPO Jamkhandi, Karnataka, KVK Sivagangai, Tamil Nadu, KVK Etah, UP, KVK Sitapur II, UP, KVK Mahasamund, Chhattisgarh
6.	Strengthening Storage Strategies	KVK Nashik-II, Maharashtra, KVK Piprakothi, East Champaran, Bihar, KVK Bongaigaon, Assam, KVK Agar Malwa, M.P.
7.	Crucial Management of Feed & Fodder	KVK Alwar-II, Rajasthan, KVK Mon, Nagaland, KVK Pune I (Baramati), Maharashtra, KVK Mayabunder, N&M Andamans, KVK Kamrup, Assam, KVK Udalguri, Assam, KVK Dhar, Madhya Pradesh
8.	Innovative Marketing Initiatives	KVK Ri-Bhoi, Meghalaya, KVK Jalna-I, Maharashtra, KVK Washim, Maharashtra, KVK Ahmednagar-1, Maharashtra, KVK Ratnagiri, Maharashtra, KVK Amravati-II, Maharashtra, KVK Tapi, Gujarat, KVK Kutch-I, Gujarat, KVK Gadag, Karnataka, ICAR-KVK Mitraniketan, Kerala, ICAR-KVK Ernakulum, CMFRI, Kerala, ICAR-KVK Ernakulum, CMFRI, Kerala, KVK Namakkal, Tamil Nadu, KVK Visakhapatnam, Andhra Pradesh, KVK

	Begusarai, Bihar, KVK Chatra, Jharkhand, KVK Sahibganj, Jharkhand, KVK Uttar Dinajpur, West Bengal, KVK Nadia , West Bengal, KVK Ropar, Sangrur, Barnala, Faridkot, KVK Hisar, Haryana, KVK Koraput, Odisha, KVK Jharsuguda, Odisha, KVK, Sitapur II, UP
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Source:https://icar.org.in/sites/default/files/Innovative_Agri-Solutions_COVID-19-20201106.pdf

V. Case studies of successful interventions by KVKs during lockdown(ICAR, 2020).

Efforts of KVKs and officials of horticulture, agriculture and other departments have helped the farmers to sell their produce during a lockdown period and have also shown how innovation thrives in a crisis. Some of the case studies of innovative COVID-19 resilient practices have been compiled based on the ICAR report and were analysed in order to know how they helped in realizing the benefits to the farming community. Few success stories in this regard are analysed and presented in the following sectors.

1. Name of KVK: KVK Ri-Bhoi, Meghalaya

Strategy: Innovative way of Tomato marketing with i-TEAMS Platform

Intervention: Tomato is widely grown in the hinterland of KVK Ri-Bhoi.KVK took the initiative to guide the farmers during this difficult situation and linked group of farmer's i-TEAMS through Integrated Technology Enabled Agri Management System (i-TEAMS-1917), a govt. of Meghalaya initiative, farmers were able to sell their harvested produce. Due to this intervention around 30-40 farmers of the district could sell 100-120 quintals of their produce to the market through i-TEAMS. The farmers were able to earn income on par with pre-COVID period. KVK Ri-Bhoi also advised and assisted the farmers/ 2SHGs (40 members) through ICT tools to go for value addition of their produce to prepare Ketchup, puree etc. 2 SHGs produced around 160 bottles of Tomato ketch up during the lockdown period. This initiative generated an additional income to the farmers.

2. Name of KVK: KVK Jalna-I, Maharashtra

Strategy: Farm to Kitchen – An e-commerce Initiative by Young Entrepreneur

Intervention:A website was developed by rural youth to make available fruits and vegetables to consumers through e-commerce. It presently offers more than 40 types of fresh fruits and vegetables other than processed food products. The delivery is done two times in the morning and evening. Payment options allow online payment as well as Cash on Delivery. Free shipping

is available for purchase more than Rs. 200/-. Flat shipping charges @Rs.20/- if the sale is below Rs. 200/- The website is being converted in App very shortly which will be available on Google play store. The web link is: <https://sarvadnyafoods.com>. As a result of this interventions, a total 13 farmers were connected to this project to supply fruits and vegetables. One customers availed the services with total turnover of Rs.75236/- within 15 days of commencement of project. Total 25976 people have visited the website. Due to this intervention there was a shortening of supply chain and thus, farmers were able to get higher on one hand and commodities were supplied at a reasonable price to the consumer on the other hand.

3. Name of KVK: KVK Washim, Maharashtra

Strategy: Direct Marketing of Fish to Consumers: Distinctive model

Intervention: In Washim district, farm ponds are used for freshwater fish farming. Fish farming is done in 74 farm ponds in the district. On an average 5-6 q of fish is harvested/farm pond which will fetch Rs. 0.90 to 1 lakh @ Rs 200/kg. Fish farmers usually sell their produce to fish brokers @ Rs 70/kg. KVK-Washim guided the farmers for fish harvesting & marketing. Harvested fresh fish sold to consumers as per their demand. As fish farming is a secondary enterprise for the farmers. Fish farmers obtained additional benefit. The story of one of farmer Mr. Keshav Paighan has been published in Agroone newspaper. Around 25-30 farmers sold their produce directly to consumers during lockdown period at village level. Daily 3000 to 4000 rupess were earned by farmers by harvesting 15-20 kg fishes and selling @ Rs.200/kg. It is pertinent to know that fish farmers were able to realize an additional profit of Rs. 60. This new model of marketing can be scaled up for the benefit of other farmers.

4. Name of KVK: KVK Ratnagiri, Maharashtra

Strategy: Digital Marketing of GI-Tagged Alphonso: National Innovations on Climate Resilient Agriculture: NICRA Village showed the pathway

Intervention: GI-Tagged Alphonso is the only crop that earns foreign exchange in Ratnagiri, Maharashtra Konkan region Mango growers export around 50,000 tonnes of Alphonso mango worldwide. Lockdown posed a challenge of harvesting and marketing of 'high value-high perishable' mango during March-April. In view of closure of international shipping and local markets, KVK provided National Agro Advisory to guide farmers on Covid-19 precautions. Facilitated online transportation pass from Regional Transportation office, Ratnagiri. KVK scientists put forth the idea of social media marketing and digital payment. Orders were booked on social media and phone call and customers were mainly from Mumbai, Pune, Nashik, Kolhapur, Solapur. With this intervention of KVK, farmers were benefitted a lot. Consumer

made payment through mobile banking & Google pay. Farmers dispatched 1200 boxes having 4800 dozen mangos on gate of apartments in towns total earning of Rs. 24.00 lakh.

5. Name of KVK: KVK Amravati-II, Maharashtra

Strategy: Linking Dairy Farmers to the Consumers in Amravati

Intervention: KVK Adopted Takli village where farmers produced 1600 litre milk daily. Milk shops/sale centres were closed due to lockdown period because of Covid-19. COVID-19 lockdown restricted market access to the milk producers. Farmers usually sold their milk in the milk processing centres or in a milk shop to maximize their returns. KVK took initiatives linking milk growing farmers to the consumers of Amravati city. KVK also guided farmers to prepare value added products in case of surplus. KVK provided the consumers contacts (of Amravati city) to the farmers. Linked the regular supply chain of milk. Consumers are satisfied because they are getting fresh milk in this lockdown period. KVK also advised and assisted farmers in preparing milk products like curd, ghee & khova if milk is in surplus quantity. With this intervention, the Takali milk farmers were able to get good price 60 Rs per litre for buffalo milk, and Rs 40 per litre for cow milk. Farmers were able to earn Rs 80000 daily and Rs 24 lakh in a month by selling direct to consumer and making value added products.

6. Name of KVK: KVK Tapi, Gujarat

Strategy: Providing Marketing Platform for Organic Vegetable Growers

Intervention: By efforts of KVK Tapi, many farmers are cultivating vegetables and fruit crops organically. Farmers usually sell their produce nearby Surat city directly to the consumers. But in Covid-19 situation, it was not possible for the farmers to sell their products in Surat. COVID-19 lockdown restricted the market access to growers. It was not possible for farmers to get a premium price for organic products as they were constrained to deliver directly to the consumers' doorstep. Developing an alternative market channel was inevitable to avoid glut and rotting of produce.

Intervention after COVID-19: Due-to present situation, KVK-Tapi requested the District Collector to provide some space for Organic Growers nearby Collectorate Office to sell their products. The Collector, Tapi gave positive reply and provided space free of charge. ATMA and Dept. of Agriculture were also involved in this endeavour and organic farmers started selling of their products daily at premium price. This intervention benefitted around 17 farmers who sold their vegetables and fruits. Farmers were also getting premium price of their organic products due to prime location.

7. Name of KVK: KVK Kutch-I, Gujarat

Strategy: Inspirational Story of Pomegranate Fruit Marketing

Intervention: Pomegranate is an important fruit crop for the income of NICRA villages in Kutch district. Pomegranate fruits were ready to harvest and to sale in the market. Due to lockdown period, market was closed. Being perishable item, fruit marketing at a time was highly essential. KVK Mundra, Kutch-I was associated with these farmers to help them for marketing. KVK linked these farmers with private local traders for marketing of the fruits at better price. KVK also requested APMC, Anjar on telephone to help these farmers in seeing their produce. With this intervention, a total of 460 tonnes of fruits were sold by 15 farmers. These efforts paved way for private traders to transport and to purchase the fruits @ Rs. 45 to 70/kg from the farmers' farm. In the process 15 farmers got Rs. 2.30 crores from Pomegranate grown in 58 ha land.

VI. Success Stories: Innovative Marketing Initiatives

Some selective success stories supported by KVKs were very innovative. Hence, an attempt has been made in the following section to capture the details of the same.

Case 1: Helping Distressed Growers: KVK Kodugu Showed the Path

Marketing of fruits and vegetables purchased directly from farmers: The Puthari FPO in association with Kodugu KVK had initiated a foray into fruits and vegetables procurement directly from farmers and marketing the same for helping farmers and consumers both. Till now about 100 farmers have benefited from this effort. The produce is purchased from local farmers and also neighbouring Mysuru district farmers. The FPO is voluntarily offering twenty per cent higher prices than the market prices, to such farmers while purchasing directly from them. The KVK has given space to market these vegetables inside the KVK campus itself, while maintaining all social distancing norms. The volunteers from KVK and FPO take care that the social distancing norms are followed.

Quantity of vegetables and fruits procured: About 5 tonnes of different vegetables (mainly chilli, brinjal, bhendi, tomato, watermelon, leafy vegetables, raw banana, cabbage, gourds etc.) and 6 tonnes of different fruits likes avocado, sapota, banana, guava, grapes, raw jackfruit, papaya have been procured directly from farmers of Kodagu and neighbouring districts of Mysore, Bangalore rural etc.). It is revealed from the table that farmers could realize additional benefit ranging from 20 – 60 percent then market price. On the other hand, consumers paid 15 – 40 percent less than what they use to pay when they purchased it from retailers. This a win-win situation where the margin being taken away by intermediaries was leveraged to benefit both private & Consumer.

Table 2: Benefits availed by farmers and consumers

Name of Produce	No. of Farmers benefitted	Farm gate price during lockdown (per kg)	Puthari FPO offered price (per kg)	Selling price to consumers (per kg)
Avocado	32	40	50 (+25 %)	60 (- 15%)
Watermelon	12	07	10 (+42 %)	14 (- 30%)
Tomato	24	05	8 (+ 60%)	10 (- 40%)
Chilli	35	10	12 (+ 20%)	15 (-15%)

Innovativeness: Most of the farmers from whom vegetables and fruits were purchased were either members of FPO or got the contact through different WhatsApp groups of farmers and agricultural groups.

Benefit to consumers: More than 1000 consumers have benefited from such an initiative where they are getting fresh fruits and vegetables at far competitive rates than the other markets. Recently KVK has been working with Mango farmers, Avocado farmers, Sweet potato farmers in guiding transport, arranging permission and Vehicle Pass to transport products to Bangalore. Some of the Initiatives and Innovations taken by Puthari FPO are in association with KVK, Kodagu (Producer Organisation Promoting Institution). Puthari FPO is a NABARD supported FPO with 850 members.

Case 2: KVK Kalburagi Model: Win-Win for Framers as well as Consumers

Watermelon, grapes, mango and sweet orange are major crops during summer season which farmers sell through middlemen within Kalaburagi (Karnataka) and outside. Due to COVID19 it was difficult to sell the produce outside the district. KVK contact farmers approached for intervention. KVK developed a strategy and roped in Ajim Premji NGO, Dept. of Horticulture, Kalyani foundation and Volunteers.

KVK-Strategy:

Door delivery at comfortable profit & affordable price to farmers and consumers was key strategy to ensure win-win situation for both. KVK, Kalaburagi created WhatsApp groups of consumers involving 250 primary members. These primary members forwarded messages to average 5 other groups reaching approximately 5000 consumers in the city. This resulted into a 101 member producers group. From these producers groups, availability produce with quantity was regularly collected and based on this, consumers were informed and indents were collected.

Table 3: Benefits availed by farmers and consumers

Particulars	Area (ha)		Production (Mt)		Market Price (Rs./Kg)		Retail Price (Rs./Kg)	Farmer Benefit (Rs./kg)	Consumer Savings (Rs./Kg)
	2019	2020	2019	2020	2019	2020	2020	2020	2020
Crop/Year	2019	2020	2019	2020	2019	2020	2020	2020	2020
Watermelon	1020	1200	51000	60000	10	3	15	7	5
Grapes	70	105	2100	3150	25	15	60	25	20
Mango	240	240	1500	800	70	50	250	100	150
Sweet Orange	20	500	20	500	40	15	60	25	20

The final distribution was ensured by farmer members and COVID19 warrior volunteer groups of Kalburagi. Around 15 vehicles from NGOs & 25 modified two wheelers of farmers were placed in service for transportation of the produce. Total 140 passes were issued for farmers, volunteers and helpers facilitated by KVK from District Administration Also, two fruits aggregation spots were arranged one at KVK another at Kalyani Foundation office. The details of benefit realized to farmers and consumers are presented in the table. It is revealed from the table that farmers fetched 100 Rs. profit while consumers saved around Rs. 150 per kilogram of mango.

Summary and Conclusion

COVID like situation may occur any time in future and hence, we need to be prepared for such situation. Especially agriculture sector, which caters to the daily food needs of general public, it is inevitable to have resilient practices to counter any unforeseen situation. The COVID-19 resilient practices adopted by KVKs are invaluable and other institutions and agencies have to emulate these practices to combat any unforeseen disaster like COVID-19.

VII. Strategies for promotion of COVID-19 resilient practices

- 1. Disaster Management:** KVKs should be ready for the unforeseen conditions like the pandemic and should include disaster management in their mandate.
- 2. Promotion of diversified farming systems including Agro-tourism:** A cost effective demonstrative agro-tourism sites of KVK farms and KVK adopted villages can be developed for diversifying farm income portfolio for farmers adoption

3. **Impactful Entrepreneurship Development:** KVKs should promote entrepreneurship among rural youth for self-employment and must develop farmer entrepreneurs to help in technology transfer through farmer-farmer extension.
4. **Market and Export Led Extension:** KVKs should create awareness about the market as well as export led extension among the farmers and promote it for Atmanirbhar Bharat.
5. **Resource Generation:** KVKs can compete and tap funds available from various government schemes and generate a part of their resources from the sale of planting materials and other produce from their farms.
6. **Convergence and Accountability:** Lot more needs to be done to achieve the convergence between existing institutional set up to make them more accountable. Also, some success stories should be shared for wider replication in other districts.

References

- ATARI Hyderabad. (2020). Particulars of its organization, functions and duties (No. 1). (https://atarihyderabad.icar.gov.in/atarihyderabad/rti/particulars_organization_functions.pdf?lang=en.)
- ATARI Jodhpur. (2020). KVK: Genesis and Growth. (<https://atarijodhpur.res.in/about-kvks.html>.)
- Correspondent, S. (2020). KVK helps farmers find market for produce. The Hindu. (<https://www.thehindu.com/news/cities/Mangalore/kvk-helps-farmers-find-market-for-produce/article31489333.ece>.)
- George, S and Prabhakar, B. (2019). AESA Good Practices 27: KVKs in support of producer companies. Agricultural Extension in South Asia. (<https://www.aesanetwork.org/kvks-in-support-of-producer-companies/>.)
- GoI, (2020). Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs) Operational Guidelines. Government of India, Department of Agriculture, Co-operation & Farmers' Welfare Ministry of Agriculture & Farmers' Welfare. (https://agricoop.nic.in/sites/default/files/English%20FPO%20Scheme%20Guidelines%20FINAL_0.pdf.)

ICAR. (2020). Innovative Agri-Solutions during COVID-19. Indian Council of Agricultural Research https://icar.org.in/sites/default/files/Innovative_Agri-Solutions_COVID-19-2020-1106.pdf.